

What is claimed is:

1. An apparatus for synchronizing uplink and downlink transmissions in a terminal of a mobile communication system, the apparatus comprising:

a receiving unit for receiving and converting an RF signal;

a processing unit for recognizing a construction of uplink time slots and downlink time slots from the converted RF signal;

a detecting unit for detecting a switching point from the converted RF signal and determining a new switching point based on the detected switching point and the recognized construction of uplink time slots and downlink time slots;

a transmitting unit for transmitting a data signal; and

a switching unit for switching between the receiving unit and the transmitting unit according to the switching point.

2. The apparatus of claim 1, wherein the transmitting unit transmits a data signal with a variable delay based on the switching point.

3. The apparatus of claim 2, wherein the processing unit controls the transmitting unit to delay the transmitted data signal such that a transmission point of the data signal corresponds to a switching point for uplink transmission.

4. The apparatus of claim 2, wherein the transmitting unit selects a data signal to be delayed and adjusts a delay time of the signal.

5. The apparatus of claim 1, wherein the switching unit performs switching at a variable time interval according to the switching point.

6. The apparatus of claim 1, wherein the detecting unit controls the switching unit to switch between the receiving unit and the transmitting unit.

7. The apparatus of claim 1, wherein the detecting unit determines the switching point based on an actual signal processing time of the transmitting unit.

8. The apparatus of claim 1, wherein the detecting unit is hardware-based.

9. The apparatus of claim 1, wherein the detecting unit is a software-based.

10. The apparatus of claim 1, wherein the mobile communication system is TDD-based.

11. An apparatus for synchronizing uplink and downlink transmissions in a terminal of a mobile communication system, the apparatus comprising:

a receiver adapted to convert a received RF downlink signal to a digital signal;

a modem adapted to examine the digital signal to recognize a construction of uplink time slots and downlink time slots and to generate time slot construction information;

a time slot detector adapted to examine the digital signal to detect a first switching point between uplink time slots and downlink time slots and to determine a second switching point based on the detected first switching point and time slot construction information;

an RF transmitter adapted to transmit an uplink data signal; and

a TDD switch adapted to switch between the receiver and transmitter according to the second switching point.

12. The apparatus of claim 11, wherein the transmitter further comprises a variable delay unit adapted to delay the transmitted data signal such that a transmission point of the data signal corresponds to a switching point for uplink transmission.

13. The apparatus of claim 12, wherein the modem is adapted to control the variable delay unit to delay the transmitted data signal.

14. The apparatus of claim 12, wherein the variable delay unit is adapted to select a data signal to be delayed and to adjust a delay time of the signal.

15. The apparatus of claim 11, wherein the TDD switch is adapted to switch at a variable time interval according to the second switching point.

16. The apparatus of claim 11, wherein the time slot detector controls the TDD switch to switch between the receiving unit and the transmitting unit.

17. The apparatus of claim 11, wherein the time slot detector determines the second switching point based on an actual signal processing time of the transmitter.

18. The apparatus of claim 11, wherein the modem is a hardware modem.

19. The apparatus of claim 11, wherein the modem is a software modem.

20. The apparatus of claim 11, wherein the mobile communication system is TDD-based.

21. A method for synchronizing uplink and downlink transmissions in a terminal of a mobile communication system, the method comprising the steps of:

examining a received signal to recognize a construction of uplink time slots and downlink time slots and generating time slot construction information;

examining the received signal to detect a first switching point between downlink time slots and uplink time slots;

determining a second switching point based on the detected first switching point and time slot construction information; and

switching between a receiver and a transmitter according to the second switching point.

22. The method of claim 21 further comprising the step of:
delaying a transmitted data signal such that a transmission point of the data signal corresponds to a switching point for uplink transmission.

23. The method of claim 22, wherein the step of delaying the transmitted data signal further comprises selecting a data signal to be delayed and adjusting a delay time of the signal.

24. The method of claim 21, wherein the step of examining a received signal to recognize a construction of uplink time slots and downlink time slots is performed by a software modem.

25. The method of claim 21, wherein the step of switching between a receiver and transmitter further comprises switching at a variable time interval according to the second switching point.

26. The method of claim 21, wherein the step of determining a second switching point further comprises considering an actual signal processing time of the transmitter.

27. The method of claim 21, wherein the step of examining a received signal to recognize a construction of uplink time slots and downlink time slots comprises counting the number of uplink and downlink time slots in the overall time slots of an uplink/downlink channel.